Amendments to the Specification:

Please add the following heading at page 1, after the Title:

BACKGROUND OF THE INVENTION

Please replace the paragraph, beginning at page 1, line 4, with the following rewritten paragraph:

One route for preparing drugs on plant basis is extracting the plant material and processing the extracts and tinctures obtained into dry extracts. As a rule, aqueous, alcoholic or mixed aqueous/alcoholic extracts are prepared, ethanol generally being used as the alcoholic component. However, the extracts may contain additional organic solvents such as methanol, propanol, butanols as well as ethers and ketones (especially ethyl ether and acetone). The extracts or tinctures thus obtained are used as such or concentrated to so-called spissum extracts which may then be processed into dry extracts. Concentration of organic aqueous solvent mixtures is generally conducted by bubble or surface evaporation. As a result of ~~the~~ contact with hot surfaces, undesirable conversions may occur which may lead to a decrease of the content of active ingredients ~~contents~~. Since the more volatile component of the solvent mixture is evaporated first ~~in~~ using a distillation method of the prior art, ~~the percentage of~~ the water level increases. This water level is primarily responsible for germ growth. The pertinent pharmacopoeias define the bacterial counts for bacteria, yeasts and mo~~u~~lds.

Please replace the paragraph, beginning at page 1, line 22, with the following rewritten paragraph:

DE 195 25 026.5 provides a process for drying spissum by using a multi-blade stirrer which reduces the drying time considerably without being ~~offensive~~harmful, but this process encounters problems of capacity. In order to avoid having to use this process for spissum preparation, concentration under similarly inoffensive conditions ~~in advance~~that would not harm the product would be necessary. ~~No such~~ Such an industrial or commercial scale process ~~at industry scale~~ is not known.

Please replace the paragraph, beginning at page 1, line 27, with the following rewritten paragraph:

Thickening or ~~vaporising~~ vaporizing is generally conducted by conventional distillation. However, conventional distillation has various disadvantages when used to thicken or ~~vaporise~~ vaporize spissum extracts or general aqueous alcoholic solutions. For a start, a considerable amount of energy is required to ~~vaporise~~ vaporize highly polar solutions such as water or alcohol. For example, about 1 KW of energy is needed to evaporate 1 kg of water in conventional evaporator systems, which is 15 times the amount required to ~~distil~~ distill ~~a~~polar

solvents such as toluene. As far as the apparatus is concerned, large surface areas in the heat exchangers and continuous introduction of heat are required. Consequently, processes without heat recovery are highly unprofitable.

Please replace the paragraph, beginning at page 2, line 7, with the following rewritten paragraph:

Since the more volatile solvent is first distilled off from solvent mixtures, operators are also facing the problem that the ratio of the solvents in the bottoms product changes continuously. However, in case of plant extracts, reduction of the alcohol content, which constitutes the more volatile component in aqueous alcoholic solvent mixtures, results in undesirable precipitation of extracted materials ~~in case of plant extracts~~. In extreme cases, this means that first the alcohol and then, in a second run, the water is distilled off in a batch process in order to achieve concentration of the bottoms product. However, this results in segregation of the product.

Please replace the paragraph, beginning at page 2, line 15, with the following rewritten paragraph:

As mentioned above, conventional distillation processes also requires the continuous addition of heat. This conflicts with the high temperature sensitivity of most active ingredients derived from plants which are usually protected by applying a vacuum during distillation. Even though this permits a decrease of the operating temperature of the distillation process, heat still needs to be introduced which results in a considerable strain on the interfaces in the bottoms product to be concentrated.

Please replace the paragraph, beginning at page 2, line 28, with the following rewritten paragraph:

In order to solve the problem of high energy consumption, attempts have been made to use different distillation processes including heat recovery employed in ~~are known from~~ other technical fields. Among those processes, an open heat pump with mechanical concentration appears to be the most economical. For example, 50 Watts/kg are required for distilling water which corresponds to an energy consumption 20 times lower than in conventional distillation. Specifically, the distillation plant based on the principle of an open heat pump, which is known from the prior art, operates with mechanical concentration of the ~~vaporised~~ vaporized product (concentration of the overhead product). The overhead released under vacuum in the evaporator is volumetrically withdrawn from the concentration means, concentrated with additional heating and then precipitated in a condenser. The energy of condensation is channelled directly to the evaporation process. This results in an ~~energetic circular~~ energy saving process which is kept going by the concentration means alone without heating or cooling, permitting a considerable reduction of the amount of heat required.

Please replace the paragraph, beginning at page 3, line 9, with the following rewritten paragraph:

Depending on the solution to be distilled, the plant may be operated with a bubble evaporator or a flash evaporator. When a bubble evaporator is used, the heat exchanger is located in the bottoms space of the medium to be distilled, while, in a flash evaporator, a circulating pump transports the bottoms product through the heat exchanger and recycles it to the evaporator in a heated state, where it is expanded for distillation. Such plants are used to concentrate baths and rinses from degreasing, phosphatisation, chromatisation and ~~galvanisation~~galvanization, for cooling lubricant emulsions, vibratory grinding emulsions, compressor condensates or washing solutions from washing cabins and high-pressure cleaning devices. The distillate (waste water) may be fed into the regular sewer, while a highly concentrated concentrate, which needs to be disposed of, is recovered as the bottoms product. In the case of solvent mixtures, however, this type of distillation process is still encumbered by the problem that the more volatile solvent is distilled off first with the result that the ratio of the solvents in the bottoms product shifts. Therefore, ~~these~~ plants of the prior art are not suitable ~~either~~ for concentrating aqueous alcoholic solutions such as plant extracts.

Please add the following heading at page 3, after line 24:

SUMMARY OF THE INVENTION

Please replace the paragraph, beginning at page 3, line 25, with the following rewritten paragraph:

~~It is an object of the~~ The present invention ~~to~~ provides a plant and a process for concentrating organic aqueous solutions, especially plant extracts or spissum extracts while avoiding the problems listed above. Preferably, this concentration should take place under the ~~most inoffensive~~ least harmful conditions for the ingredients and, optionally, permit adjustment of the degree of concentration and the alcohol content of the solution as required.

Please add the following heading at page 3, after line 30:

BRIEF DESCRIPTION OF THE DRAWING

Please add the following new paragraph at page 3, after line 30.

Figure 1 is a schematic representation of a distillation apparatus according to the present invention.

Please replace the paragraph, beginning at page 3, line 31, with the following rewritten paragraph:

According to the invention, ~~this object is achieved by~~ there is provided a vacuum distillation plant, comprising a) a flash evaporator, b) a vapo~~u~~r concentration means, and c) a multi-stage condenser positioned downstream of the vapo~~u~~r concentration means preferably with interposed rectification, ~~wherein a~~ including means for recycling at least part of the condensate from a condensation stage to the bottoms product. ~~is included.~~

Please replace the paragraph, beginning at page 4, line 3, with the following rewritten paragraph:

Preferably, the condenser serves as a heat exchanger and is arranged in such a manner that the bottoms product serves as a cooling liquid or heat carrier liquid for the condenser, respectively, before recycling to the evaporator or injection into the flash evaporator. This is effected by directing the bottoms product past the condenser as a cooling liquid before feeding it into the evaporator. By heat exchange, the bottoms product takes up the condensation heat of the distillate and is thus brought back to the distillation temperature. Upon being fed into the flash evaporator once more, the bottoms product expands, part of the solvents evaporate~~s~~ and the remaining liquid is cooled. This liquid, in turn, becomes the bottoms product which may be reused for cooling. Transport of the "cooling liquid" takes place in accordance with the principle of heat exchange, i.e. the liquid is first contacted with the colder condensation stage for the most volatile components of the overhead product, followed by additional condensation stages in the order of volatility of the ~~precipitated~~ distillate components ending with the condensation stage for the least volatile components. In case of aqueous alcoholic solvent mixtures water is the least volatile component and the alcohol(s) is/are the most volatile component(s) of the overhead product. The distillate condensates are removed separately from the condensation stages.

Please replace the paragraph, beginning at page 4, line 26, with the following rewritten paragraph:

In accordance with the invention, at least part of the condensate of at least one stage is recycled to the bottoms product by lines provided for that purpose before being channelled to evaporation once more. By adding part of the condensate to the bottoms product, it is possible to replace the amount of the more volatile component in the bottoms product which has been removed overproportionately and to keep the ratio of the solvents constant despite different volatilities. According to the invention, alcohol as the more volatile component serves to entrain the less volatile component water, which is entrained from the aqueous alcoholic solvent mixture below the azeotrope point. It is preferred to feed the condensate back into the evaporator above the liquid level of the bottoms product. Likewise, the condensate may be fed into the bottoms product, mixed with the bottoms product and, optionally, additional solution (spissum extract), and the mixture introduced into the evaporator.

Please replace the paragraph, beginning at page 6, line 1, with the following rewritten paragraph:

Evaporation takes place with the aid of flash evaporation. Flash evaporation permits ~~to operate~~ operation at low temperatures while reducing the strain on the surface areas of the product, shortening residence times and ensuring homogenous energy up-take at the same time. This avoids thermal strain on the active drug components of the plant extracts. Generally, this permits concentrating solutions containing heat-sensitive substances.

Please replace the paragraph, beginning at page 6, line 14, with the following rewritten paragraph:

The invention is based on the idea of using alcohol recovered from the process without additional energy as the entrainer to distill off the water which, *per se,* is less volatile. On the other hand, the temperature in the heat exchanger is controlled by partial condensation in such a manner that simultaneous condensation and separation of several different solvents (water and alcohol(s)) is possible at the same pressure.

Please replace the paragraph, beginning at page 6, line 20, with the following rewritten paragraph:

On the one hand, this is achieved by volumetric vapo~~u~~r transportation. In volumetric vapo~~u~~r transportation, the molecules in the gaseous phase are sucked from a (vapo~~u~~r) concentration means in accordance with the composition or the partial pressures of the components in the reaction space. If, as provided by the invention, a concentration means or a volumetric transport system such as a Roots blower is interposed between the evaporation process and the condenser, a defined mixture is formed behind the concentration means which may be decomposed by partial condensation.

Please replace the paragraph, beginning at page 6, line 28, with the following rewritten paragraph:

As opposed to the prior art, rectification in the invention is not used on the evaporator side, where the reflux necessary for degradation is formed by external heat release and thus a loss of energy, but on the condensate side after concentration. In the invention, condensation (and rectification) are used in such a manner that not just hydraulic energy is used to segregate the vapo~~u~~r pressures, but that it is inherit to the system to also use also the heat of condensation ~~heat~~ of the condensed fractions to bring the bottoms product up to operating temperature again. In addition, continuous alcohol reflux may be employed as an entrainer without having to use energy over and above the concentration step.

Please replace the paragraph, beginning at page 7, line 21, with the following rewritten paragraph:

In addition, the separation of the overhead into its individual components as provided by the invention permits recycling ~~said~~the components separately. In accordance with the invention, the overhead is therefore separated by partial condensation in several condensation steps. To facilitate separation, a rectification may be interposed between the individual condensation steps. In the device according to the invention, said rectification is preferably interposed between two heat exchangers so that the necessary weight of the vapo~~u~~r may be developed to condense the higher boiling components (water) separately from the lower boiling components (alcohol). This effect may preferably be increased by using a pre-vacuum pump in addition to the concentration means which may be an oil-driven liquid-ring pump. Unless recycled according to the invention, the individual condensates may be recovered in a comparatively pure form.

Please replace the paragraph, beginning at page 8, line 1, with the following rewritten paragraph:

~~Below, a~~A preferred embodiment of the present invention will be described below ~~on the basis of~~ in connection with the attached drawing.

Please replace the paragraph, beginning at page 8, line 3, with the following rewritten paragraph:

For a start, a distillation plant as shown in Fig. 1 comprises an evaporation~~or~~ unit 1 placed over an evaporator bottom 2 and, ~~thus~~ in the region where the liquid to be evaporated circulates, a liquid separator 3 where product entrained in the evaporation step is ~~deposited~~ separated and returned or recycled to the liquid phase via a siphon 4. ~~and~~ The distillation plant includes an aerosol separator 5 where the pre-purified vaporisation or overhead product(s) in the ~~evaporator head~~ evaporation unit are purified once more by means of an aerosol (tangential) separator 5 in order to remove the aerosols contained therein.

Please replace the paragraph, beginning at page 8, line 10, with the following rewritten paragraph:

A sensing probe (not shown) is disposed centrally at the bottom of the evaporator 1 by which the level of the contents in the evaporator may be measured. The bottoms product cooled by evaporation is fed to ~~the~~ pump 7 via ~~a~~ discharge pipe 6. In order to avoid formation of a vortex or clogging by deposited product, ~~said~~the discharge pipe ~~is extended by~~ includes a curved ~~part~~ or right angled portion so that the evaporator cannot be emptied completely via ~~this~~ pipe 6. Alternatively pipe 6 can contain a conventional trap. For complete ~~depletion,~~emptying an

additional pipe is provided ~~on~~in the lowest part (portion) of the evaporator bottom 2 which ~~ensures~~ insures that the remainder is fed into ~~the~~ pump 7. ~~The pump~~Pump 7~~,~~ is preferably a circulating pump used to~~,~~ transport~~s~~ the bottoms from evaporator 1 ~~product~~ through ~~the~~ a heat exchanger 8, comprising two stages and a rectification unit in conjunction with the two stages, where it is heated and recycled to ~~the~~ a tangential injection means 10 in ~~the~~ evaporator 1 by ~~the circulating~~ line 9. ~~An a~~Additional solution (feed) may be supplied by the same line. Addition of feed takes place by use of a charging valve 11 ~~through the heat exchanger into the circulating~~ in line 9 with~~,~~ the inlet of the feed into ~~the circulating~~ line 9 preferably ~~being~~ designed in such a way that it ~~simultaneously~~ also acts as a throttle by means of which the circulating product is expanded so that the feed is mixed with the circulating bottoms product in ~~the~~ line 9 prior ~~up~~ to entering the evaporator 1.

Please replace the paragraph, beginning at page 8, line 26, with the following rewritten paragraph:

Vapo~~u~~rs or overhead products released during evaporation are withdrawn from the vapo~~u~~r concentration means 12~~,~~ which is preferably a Roots vacuum pump or ~~a~~ Roots ~~blower~~Blower, concentrated and pushed (introduced or conducted) into the first stage 8a of heat exchanger 8~~a~~ at the same time. Thus concentration means 12 serves to concentrate the overhead vapors by compression to ensure volumetric transport of the overhead to the heat exchanger 8. In the bottoms region~~,~~ of heat exchanger section 8a a ~~connecting~~ line 13 leads from ~~the~~ heat exchanger section 8a to the rectification stage or unit 14 of heat exchanger 8 so that ~~the~~ vapo~~u~~rs not ~~precipitated~~ condensed in the heat exchanger stage 8a rise through the rectification unit 14 and are then transported through ~~the connecting~~ line 15 from the rectification unit 14 into the second heat exchanger stage 8b where preferably all of the remaining solution is precipitated (condensed). Pump 22 and conduit 24 are included in the second stage 8b of heat exchanger 8 to enable the user to vent any un-condensed vapors from the second stage 8b of heat exchanger 8. In each case, the condensate ~~of~~from the heat exchangers stages is preferably withdrawn by ~~the~~ membrane pumps 16a, 16b and discharged. Depending on the throughput adjustment, the condensate from the second heat exchanger stage 8b is ~~re-injected into~~ returned to the head space of the evaporator 1 by means of a valve 18 and conduit 20 ~~to~~ so as to ensure the proper reflux ratio.